



HDR-PJ10

High Definition Projector Handycam[®] Camcorder

Share your memories virtually anywhere using the HDR-PJ10 Handycam camcorder's built-in, high-contrast projector. This mobile theater can project up to a 60" (diag.) image on almost any surface, and with powerful stereo speakers, you'll hear all the action. Record 1920x1080/60i/60p Full HD videos onto 16 GB of internal flash memory.



1920x1080 Full HD 60i/60p Recording w/3MP still image

The Sony® HDR-PJ10 offers 1920x1080 resolution letting you record your memories in exceptional Full High Definition quality. Capable of 60p recording with playback via HDMI™ (cable sold separately) to an HDTV providing stunning clarity and incredibly detailed and smoother playback of your memories.

16 GB¹ embedded Flash Memory for up to 6 hours of recording

The embedded 16 GB¹ flash memory can record and store up to 6 hours of high definition video footage (HD LP mode).*

Project your videos on the go anywhere, anytime

The high-contrast projector built-in to the LCD panel gives you the freedom to share your favorite memories virtually anywhere. Powerful enough to project a 60" diagonal screen, this small projector packs a powerful punch. Combined with advanced stereo speakers with Clear Phase technology, your memories will come alive for you and those you're sharing with.

Wide Angle G lens to capture everything you want

Experience the pinnacle of Sony® lens technology with the professional-quality G Lens. Engineered for superior optical performance, Sony G lenses deliver brilliant, accurate color reproduction and sharp, amazingly detailed images. In addition, the 29.8mm focal length offers a broader perspective for enhanced wide angle shooting.

Back-illuminated "Exmor R" CMOS sensor for superb low-light video

Experience stunning low-light sensitivity with improved image clarity and drastically reduced grain with Sony's back-illuminated "Exmor R" CMOS sensor. Designed for compact cameras and camcorders, the "Exmor R" sensor relocates the photo diodes above the support circuitry, maximizing the light gathering area per pixel so you can shoot with better results in lower lighting conditions

Optical SteadyShot™ image stabilization w/Active Mode

Optical SteadyShot image stabilization with Active Mode compensates for greater degrees of camera shake to deliver stunningly smooth video from wide angle to full telephoto shooting. In addition, innovative 3-Way Shake-Canceling adds electronic roll stability for even smoother video capture.

42x Extended Zoom to get even closer to the action

Extended Zoom works in conjunction with 30x optical zoom to get even closer to the action while maintaining HD image quality.

Additional Features:

- •3.0" touch-screen Clear Photo LCD Plus™ display (230K)
- Tracking Focus follows selected subjects
- •5.1ch Surround mic for vivid and dynamic surround sound
- •Wind noise reduction for clear voice recording
- •Event Browse groups video/stills by events automatically
- •Highlight Playback creates movies with transitions for you
- Intelligent Auto (90 different scene combinations possible)
- •S-Master™ digital amplifier for true and dynamic output
- •Clear Phase stereo speakers for true-to-life audio playback
- •Direct Copy to external hard drive without PC13
- •Built-in USB cable for easy file transfer/charge
- •Golf Shot
- Built-in USB Cable & pre-installed PMB portable

*35mm equivalent.

Specifications

| _ | |
|---|---|
| MAGER | |
| Imaging Device | 1/4" back-illuminated "Exmor R" CMOS Sensor |
| Processor | BIONZ® image processor |
| Imager Pixel Gross Size | 4200K |
| IDEO | |
| Video Actual 16:9 | Approx. 4200K pixels |
| Video Actual 4:3 | Approx. 1670K pixels |
| Video Resolution (Movie Quality) | HD: 1020v1080/60p, 60i (EV EH), 1440v1080/60i (HQ LD) |
| Video Signal System | HD: HDTV 1080/60p, 60i; STD: NTSC color, EIA standards HD: MPEG4-AVC/H.264 AVCHD™ format compatible |
| Video Format(s) Supported | (1080/60p: original format); STD: MPEG2-PS |
| TILL PICTURE | |
| Still Actual 16:9 | 3.0MP (2304x1296) (Photo Mode) |
| Still Actual 4:3 | 3.3MP (2112x1584) (Photo Mode) |
| Still Picture Max Resolution | 3.3MP |
| Dual Record Resolution | 3.0 megapixels 16:9 (2304x1296) |
| UDIO | |
| Audio Recording Format | Dolby® Digital 5.1ch, Dolby® Digital 5.1 Creator, 2ch Sterea |
| Microphone | Built-in Zoom Microphone |
| IEDIA TYPE | |
| | Memory Stick PRO Duo™ media (sold separately); |
| Recording Media | SD/SDHC media (sold separately) |
| Internal Memory | Flash Memory 16 GB ¹ |
| ECORDING CAPACITY | |
| | HD PS: Approx. 1h 15m |
| | HD FX: Approx. 1h 30m |
| Record time with | HD FH: Approx. 2h 00m |
| Internal Memory* | HD HQ: Approx. 3h 35m |
| | HD LP: Approx. 6h 15m |
| | STD HQ: Approx. 3h 45m |
| PTICS AND LENS | |
| Lens Type | G Lens |
| 2 Engine Equipment and 3.4.0 | |
| 35mm Equivalent 16:9 | 29.8mm - 894mm |
| 35mm Equivalent 4:3 | 36.5mm - 1095mm |
| 35mm Equivalent 4:3 Aperture | 36.5mm - 1095mm F1.8 - F3.4 |
| 35mm Equivalent 4:3 Aperture Exposure Control | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0* Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0* Clear Photo LCD Plus™ display (230K) Wide (16:9) - Yes (Memory Stick PRO Duo media, SD/SDHC media) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover S/S & Zoom Button on LCD | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover Sy5 & Zoom Button on LCD IPUTS & OUTPUTS | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) Yes (Memory Stick PRO Duo media, SD/SDHC media) Auto Yes (Touch Panel) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover Sy's & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0* Clear Photo LCD Plus™ display (230K) Wide (16:9) Yes (Memory Stick PRO Duo media, SD/SDHC media) Auto Yes (Touch Panel) Video/S Video/Audio/Component Out/Remote |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover S/S & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover S/S & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) USB Port(s) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover S/S & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) USB Port(s) Component Video (Y/Pb/Pr) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover \$/\$ & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) USB Port(s) Component Video (Y/Pb/Pr) Output(s) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Monual / Auto Lens Cover S/S & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) USB Port(s) Component Video (Y/Pb/Pr) Output(s) HDMI" Connection Output(s) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus" display (230K) Wide (16:9) Yes (Memory Stick PRO Duo media, SD/SDHC media) Auto Yes (Touch Panel) Video/S Video/Audio/Component Out/Remote HDMI" Yes (mini B/Hi-Speed) A/V terminal Yes (mini) |
| 35mm Equivalent 4:3 Aperture Exposure Control Filter Diameter (mm) Focal Distance (mm) Focal Distance (mm) Focus System Shutter Speed Minimum Illumination Optical Zoom Digital Zoom Extended Zoom ISPLAY Display View Finder ARDWARE Flash Memory Card Slot Manual / Auto Lens Cover \$/\$ & Zoom Button on LCD IPUTS & OUTPUTS Audio/Video Remote Terminal Digital Audio/Video Output(s) USB Port(s) Component Video (Y/Pb/Pr) Output(s) | 36.5mm - 1095mm F1.8 - F3.4 Yes (Touch Panel) 37mm 2.1mm - 63mm Contrast AF Auto: 1/8-1/10000; STD: 1/60 - 1/10000 11 lux (1/60 Shutter Speed) 30x 350x 42x 3.0° Clear Photo LCD Plus™ display (230K) Wide (16:9) |

| Р | ROJECTION | |
|---|---|--|
| | Light Output | Up to 10 lumen |
| | Resolution Output | 640x360 |
| | Screen Coverage | 10" - 60" (diagonal) |
| | Throw Distance | Approx. 18in 9ft (0.5m - 3m) |
| | Endurance (Battery Life) | Approx. 1.5 hours (Supplied Battery) |
| | , , , | Approx. 1.5 flours (Supplied Barriery) |
| _ | ONVENIENCE FEATURES Face Detection | W- |
| | Smile Shutter™ Mode | Yes Dual Capture/Always On/Off |
| | Quick On | Yes, Power On with LCD |
| | BRAVIA® Sync Control for HDMI (CEC) | Yes ⁵ |
| | Dynamic Range Optimizer | Yes |
| | Image Stabilization | Optical SteadyShot™ image stabilization |
| | • | w/Active mode (Wide to Tele) |
| | x.v.Color™ | Yes |
| | White Balance Fader Effects | Auto/Onepush/Outdoor/Indoor White/Black |
| | rader Ellecis | |
| | Scene Selection Mode(s) | Auto/Twilight/Sunrise & Sunset/Fireworks/Landscape/ Portrait/Spotlight/Beach/Snow |
| | Event Browse | Yes |
| | Photo Capture from Movie | Yes |
| | Still Image Format(s) | JPEG |
| | Slide Show Mode | Yes |
| | One Touch Disc Burn | Yes (Menu) |
| | PhotoTV HD | Yes ⁸ |
| | Multiple Language Display | Yes |
| | Smooth Slow Record Direct Copy | Yes Yes ¹³ |
| В | OWER | 163 |
| | Power Consumption | 2.6W (HD), 2.4W (STD) |
| | Supplied Battery Type | InfoLithium® (NP-FV50) |
| | Power Requirements | 7.2V (battery pack); 8.4V (AC Adaptor) |
| D | IMENSIONS | |
| | Dimensions (Approx.) | 2 3/8" x 2 5/8" x 4 5/8" (58.5mm x 64.5mm x 116.5mm) |
| | Weight (Approx.) | 10.9oz (310g) |
| s | UPPLIED ACCESSORIES | |
| | AC Adaptor | Yes |
| | Rechargeable Battery Pack | InfoLITHIUM® (NP-FV50) |
| | Remote Commander® control unit | RMT-835 with Battery |
| | Power Cord | Yes Yes |
| | Component Video Cable Composite Video Cable | Yes |
| | USB Cable | Yes |
| | Application Software (CD-ROM) | PMB Ver.5.5° |
| s | UGGESTED ACCESSORIES | |
| | Rechargeable InfoLITHIUM | ND 5/50/5/70/5/100 |
| | Batteries | NP-FV50/FV70/FV100 |
| | Starter Kit | ACC-FV70, ACC-FV50A, ACC-HDV7 |
| | AC Adaptor/Charger for | AC-VQV10, AC-L200, BC-TRV, AC-UP100 |
| | V series batteries Lens | VCL-HGA07B, VCL-HGE08B |
| | Water Housing | SPK-HCG |
| | Tripod | VCT-80AV, VCT-60AV, VCT-50AV, VCT-R640, VCT-R100 |
| | Video Light | HVL-10NH, HVL-HFL1 |
| | DVDirect® Recorder | VRD-MC6, VRD-P1 |
| | | |

FOOTNOTES

- *Capacity will vary based on type and complexity of image recorded.

- *Capacity will vary based on type and complexity of image recorded.

 1. 6 GB equals 16 billion bytes, A portion of the total storage is used for system management and/or application files.

 5. Requires IPDMI connection to BRAVIA Sync or Theatre Sync enabled HDTV.

 8. Requires compatible BRAVIA* HDTV and cable (sold separately).

 9. Requires Microsoff* Windows* VS PSP3 / Windows Vista* SP2/Windows 7. Not supported by Mac* OS.

 13. Requires VMC-UAM1 coble (sold separately). AC ower for camcorder, and hard drive formatted in FAF32.

 USB-hub not supported. External HHD/USB media should be less than 2TB (Terabytes).

Active Interface Shoe









 $oldsymbol{ol}}}}}}}}}}}}}}}}}}$